Name:_____ Date:_____

PC: Solving Rational Inequalities Graphically Ms. Loughran

Do Now:

1. Solve the following equation graphically by doing each of the following:
   (a) Draw a complete graph of the function showing all intercepts and asymptotes.
   (b) Write the window settings you use on your graph.
   (c) Find the solution set

$$\frac{1}{x+3} = -4$$

Solve each rational inequality below graphically by doing the following:
   (a) Draw a complete graph of the function showing all intercepts and asymptotes.
   (b) Write the window settings you use on your graph.
   (c) Using your graph, draw a number line with critical points that shows the values of x that satisfy the inequality.
   (d) State the solution set using both set builder notation and interval notation.

1. $\frac{1}{x+3} \geq -4$

2. $\frac{1}{x+3} > -4$

3. $\frac{1}{x+3} \leq -4$

4. $\frac{1}{x+3} < -4$

5. $\frac{x-3}{x+5} \leq 9$

6. $\frac{x+3}{2x-7} < 5$

Practice

Solve each rational inequality below graphically by doing the following:

(a) Draw a complete graph of the function showing all intercepts and asymptotes.
(b) Write the window settings you use on your graph.
(c) Using your graph, draw a number line with critical points that shows the values of x that satisfy the inequality.
(d) State the solution set using both set builder notation and interval notation.

1. $\dfrac{x-1}{x+4} > 3$

2. $\dfrac{x^2-x+1}{x+2} < 3$

3. $\dfrac{x-1}{x^2-4} \le 0$

4. $\dfrac{2}{x-2} + \dfrac{5}{x} \le 7$

5. $\dfrac{3}{x-1} + \dfrac{2}{x} \ge 8$

6. $\dfrac{x-1}{x+4} + \dfrac{2}{x-8} \ge 10$